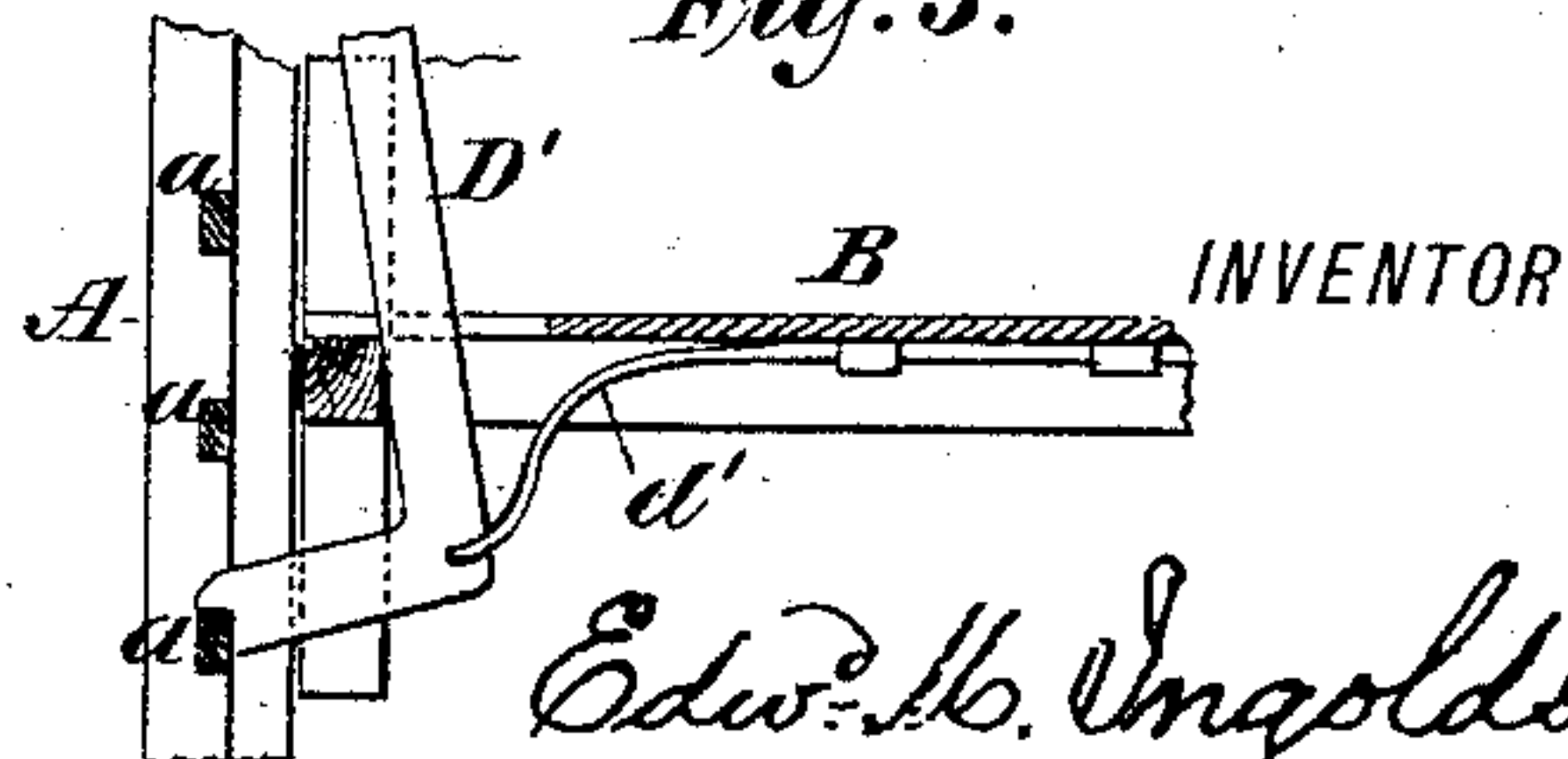


Patented Oct. 13, 1885.



Edw. M. Ingoldby

UNITED STATES PATENT OFFICE.

EDWARD M. INGOLDSBY, OF NEW YORK, N. Y.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 328,311, dated October 13, 1885.

Application filed July 30, 1885. Serial No. 173,033. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. INGOLDSBY, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Elevators, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a central vertical section taken on line *xx* in Fig. 4. Fig. 2 is a central vertical section also taken on line *xx* in Fig. 4, showing the safety attachment in operation. Fig. 3 is a horizontal section taken on line *yy* in Fig. 1. Fig. 4 is a horizontal section taken on line *zz* in Fig. 1, and Fig. 5 is a detail view of a modified form of the safety device.

The object of my invention is to construct an elevator having a safety appliance arranged to stop the elevator at any point in its excursion up or down the elevator-shaft in case of the breakage of the cable or rope employed to lift and sustain the elevator-car.

It also consists in the combination, with the elevator and elevator-shaft, of a series of doors of varying size and series of casings arranged on a level with the different floors through which the elevator passes, and adapted to receive the doors carried by the elevator-car as the car descends, the series of doors and casings being arranged relative to each other, so that the larger door carried by the car will be left in the casing belonging to the upper floor of the building, and the next smaller door will pass through the larger casing and be left in the casing of the next lower floor, and so on throughout the entire series of casings, the elevator leaving one door in each casing on its descent.

In carrying out my invention I erect in the elevator well or shaft a frame, A, composed of corner posts, A', and cross-bars *a*, attached to opposite sides of the frame at small distances from each other and adapted to receive the ends of safety-catch levers presently to be described.

In the frame A, opposite the several floors of the building in which the elevator is placed, and on a level with the said floors, are placed frames B', provided with a rabbet or recess, *g*, for receiving the doors E E' E'', &c., carried by the elevator-car, the door E''' being

larger than the door E and adapted to the upper frame, B', in the elevator-shaft, the door E'' being larger than the door E and adapted to be received by the lower frame, B', as the elevator-car descends.

The elevator-car B is of ordinary construction, except that its top is elevated above the safety devices, and is provided with guide-pins *f*, which are received in holes in the doors E E' E'', &c., as the elevator in its upward course takes the several doors from their frames B'.

In the center of the car B, at the top, is secured a T-headed standard, C, provided with a vertical central slot, *l*.

Surrounding the standard C, below its head, is a rectangular plate, I, which is capable of sliding upon the standard C, and a link, J, passes over the head of the standard C and underneath the plate I through the slot *l* in the said standard. The link J is connected with a wire rope, F, which passes upward through apertures in the doors E E' E'', &c., and over the sheave G, journaled at the top of the elevator-shaft, thence downward to the counterbalancing-weight H. The rope F may also be connected with the hoisting mechanism of the elevator.

In opposite sides of the elevator-car, and near the corners thereof, are pivoted four bent levers, D, on the pins *e* at or near the top of the car. The short arms of these levers D are bent inward toward the center of the car, and are provided with weights *d*, which are connected by links *k* with the corners of the plate I. The lower and longer arms, D', of the levers D extend downward below the bottom of the elevator-car B, and extend outward at right angles, the free ends bending toward the sides of the elevator-shaft, in which are secured the horizontal bars *a*.

In the normal operation of the elevator the rope F in pulling up the link J brings the plate I into contact with the head of the standard C, and the car is raised and lowered with the link and the plate I in this position, the plate I thereby holding up the levers D and retaining the bent ends of the longer arms D' of the said levers underneath the car; but in case of the breakage of the rope F, the link J and plate I being released, the weighted

ends of the levers D are liberated, their weights d drop, and the longer arms D' of the said levers are thrown outward, and their bent ends are brought into engagement with the bars a 5 a at the sides of the frame A, thereby arresting the car and holding it until released. The bent ends of the longer arms of the levers D, when thrown outward in the manner just described, are brought into contact with the lower 10 timbers of the car-frame, thus taking the strain of the stopping of the car from the pivots e of the levers.

It is obvious that I may employ a spring, d' , to operate the levers D, instead of the weights 15 d , as shown in Fig. 5, the spring d' being arranged to press the bent end of the longer arm D' of the lever D outward when the lever is released by the breaking of the elevator-rope.

By providing a series of movable doors, as 20 described, when the elevator-car is at the bottom of the shaft communication through the shaft is entirely shut off, so that in case of fire communication from one floor to another is shut off by said doors, so that the fire is 25 factually prevented from being communicated from one floor to another through the elevator-shaft, and by means of my improved safety-lever the elevator-car will be prevented from

dropping more than a few inches in case of a breakage or giving away of the elevator-rope. 30

I am aware that it is not new to provide elevators with doors for closing the elevator-well at the different floors as the elevator rises; therefore I make no claim to that construction.

Having thus described my invention, what 35 I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with an elevator-shaft provided with horizontal bars $a a$ on the opposite sides thereof, of the car b , provided 40 with weighted levers D, held normally out of contact with the bars a by the elevator-rope, but arranged to engage the bars a in case of a breakage of the elevator-rope, substantially as herein specified. 45

2. The combination, with the car B, provided with a central slotted standard, C, of the apertures, plate I, fitted to slide upon the standard, weighted levers D, links k , connecting the said levers with the plate I, and an ele- 50 vator-shaft provided on opposite sides with horizontal bars a , as herein specified.

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Witnesses:

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